Questionnaire on Field Experiences
Applying Factory Data Interface Standards to Robotics

1. What standard did you apply?
   HTTP

2. Why did you apply it?
   To provide open access to the controller from a standard browser.

3. How did you apply it?
   We implemented custom embedded software.

4. What worked? What didn't work?
   We were able to provide easy access to robot internal information. We experienced some initial problems with interaction and conflict with the real time environment. We resolved these conflicts during development with priority changes.

5. What were the benefits?
   We were able to provide access to the controller using standard PC tools to gather diagnostic and status information (both detailed and summary). This includes controller as well as process information.

6. What needs to be done?
   Standards need to be established for the features supported between the various web browsers.

   Security is an important issue when connecting an open architecture web browser and a real time controller that is critical to a factory floor operation. For ease of use, you want a user to be able to configure IO from their PC for example, but you don't want Joe User in the office to be able to change it.

7. How should validation testing be done?
   Testing with different browsers over different network configurations with different network loading while the robot is experiencing maximum process loading.

   For a real time controller, interaction between the HTTP interface at high throughput and the real time environment at max loading must be analyzed and measured for any potential impacts.

G. Rutledge

FANUC Robotics